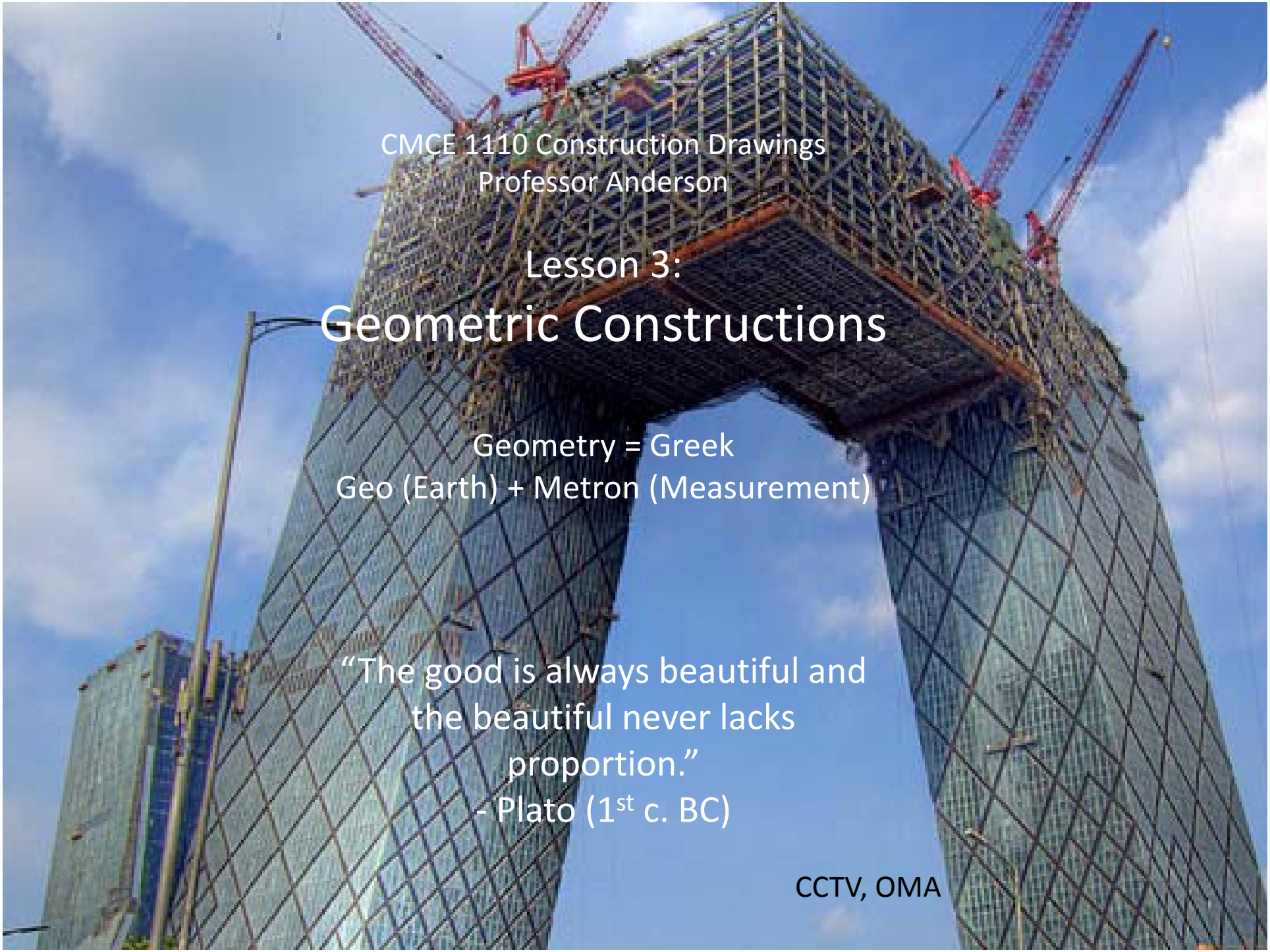


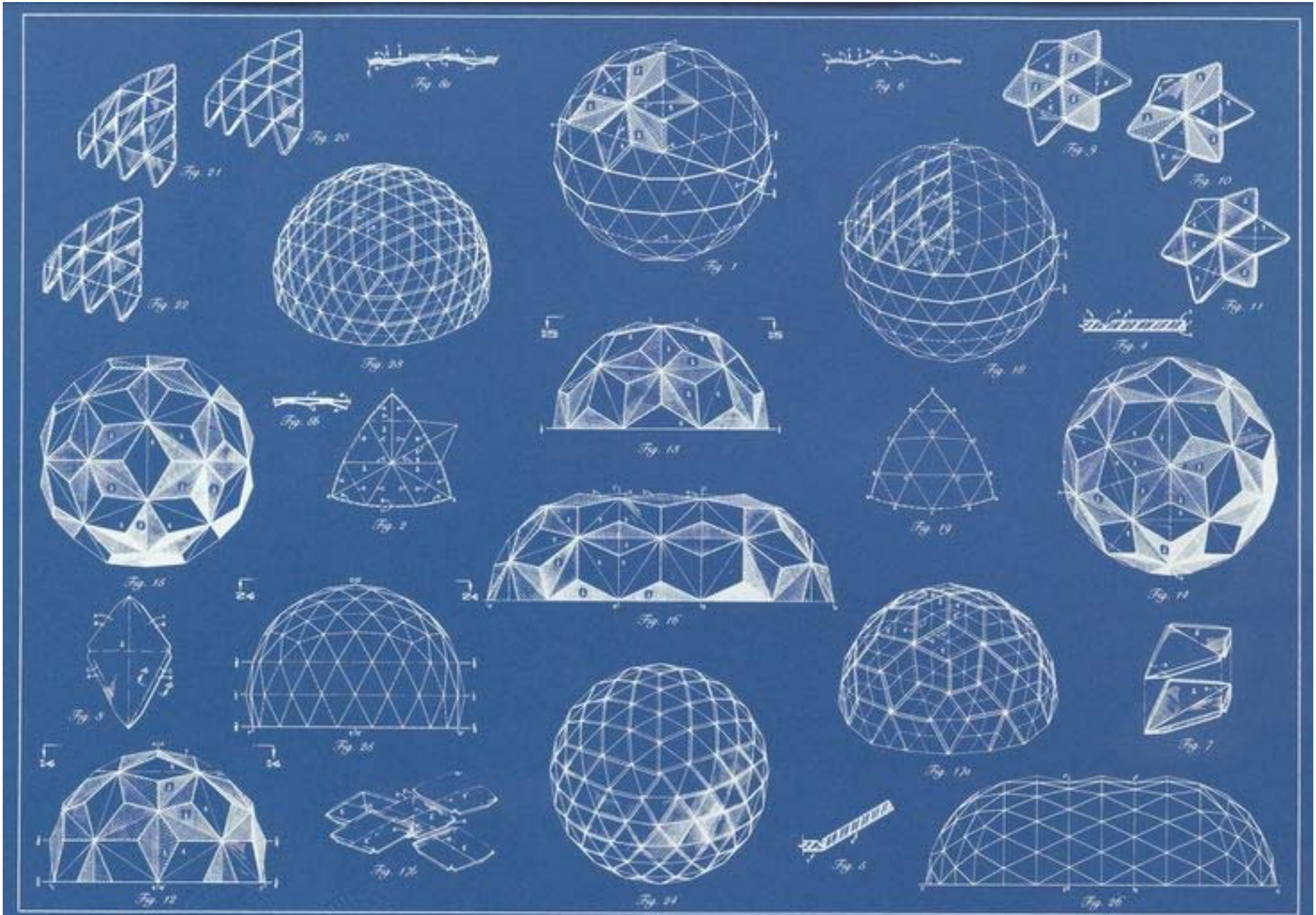
CMCE 1110 Construction Drawings
Professor Anderson

Lesson 3:
Geometric Constructions

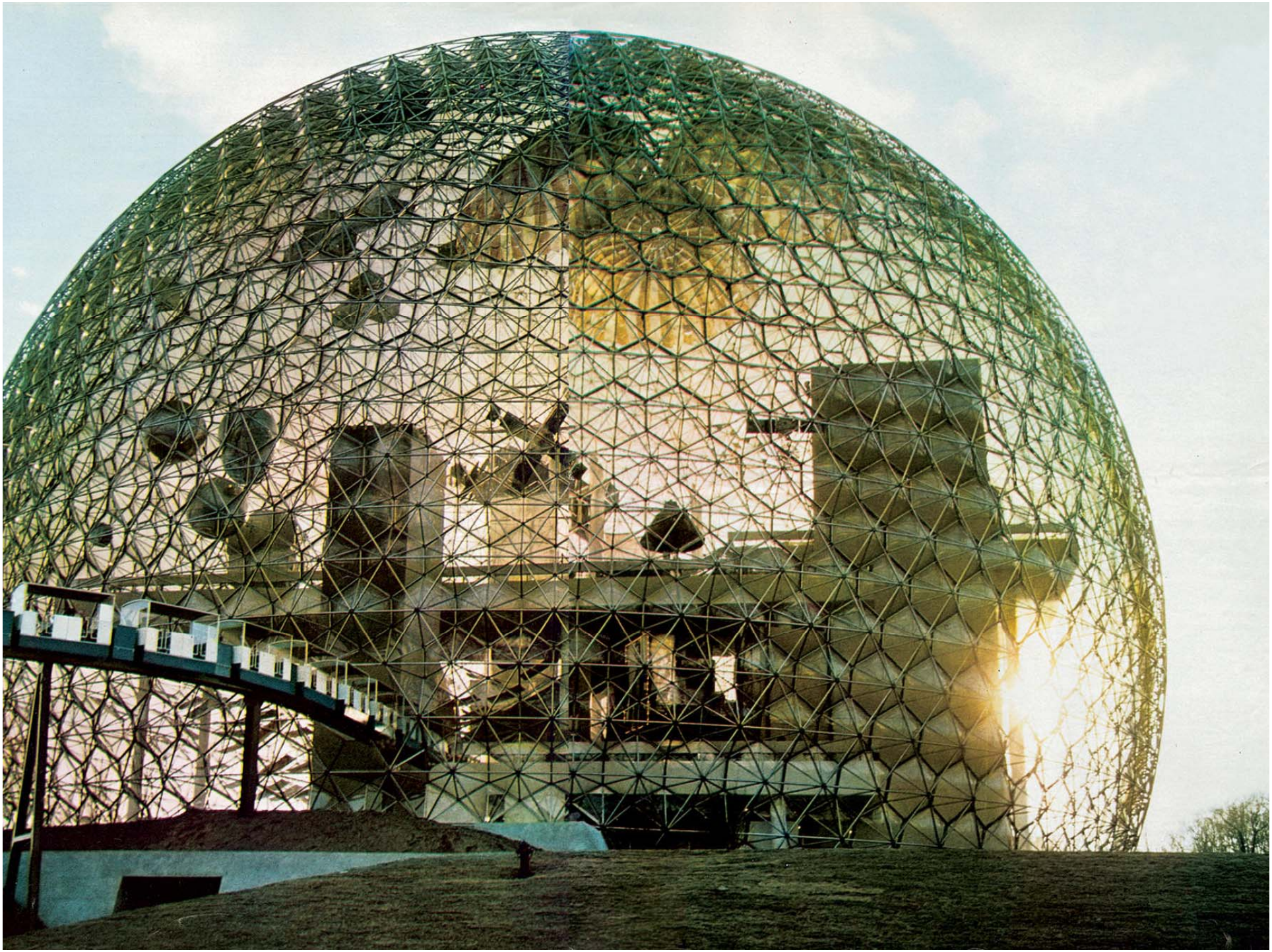
Geometry = Greek
Geo (Earth) + Metron (Measurement)

"The good is always beautiful and the beautiful never lacks proportion."
- Plato (1st c. BC)

CCTV, OMA



LAMINAR GEODESIC DOME, United States Patent Office no. 3,203,144, filed May 27, 1960, serial no. 32,268, granted August 31, 1965, inventor: Buckminster Fuller



Geometry

- Shape
- Size
- Relative position of figures
- Properties of space

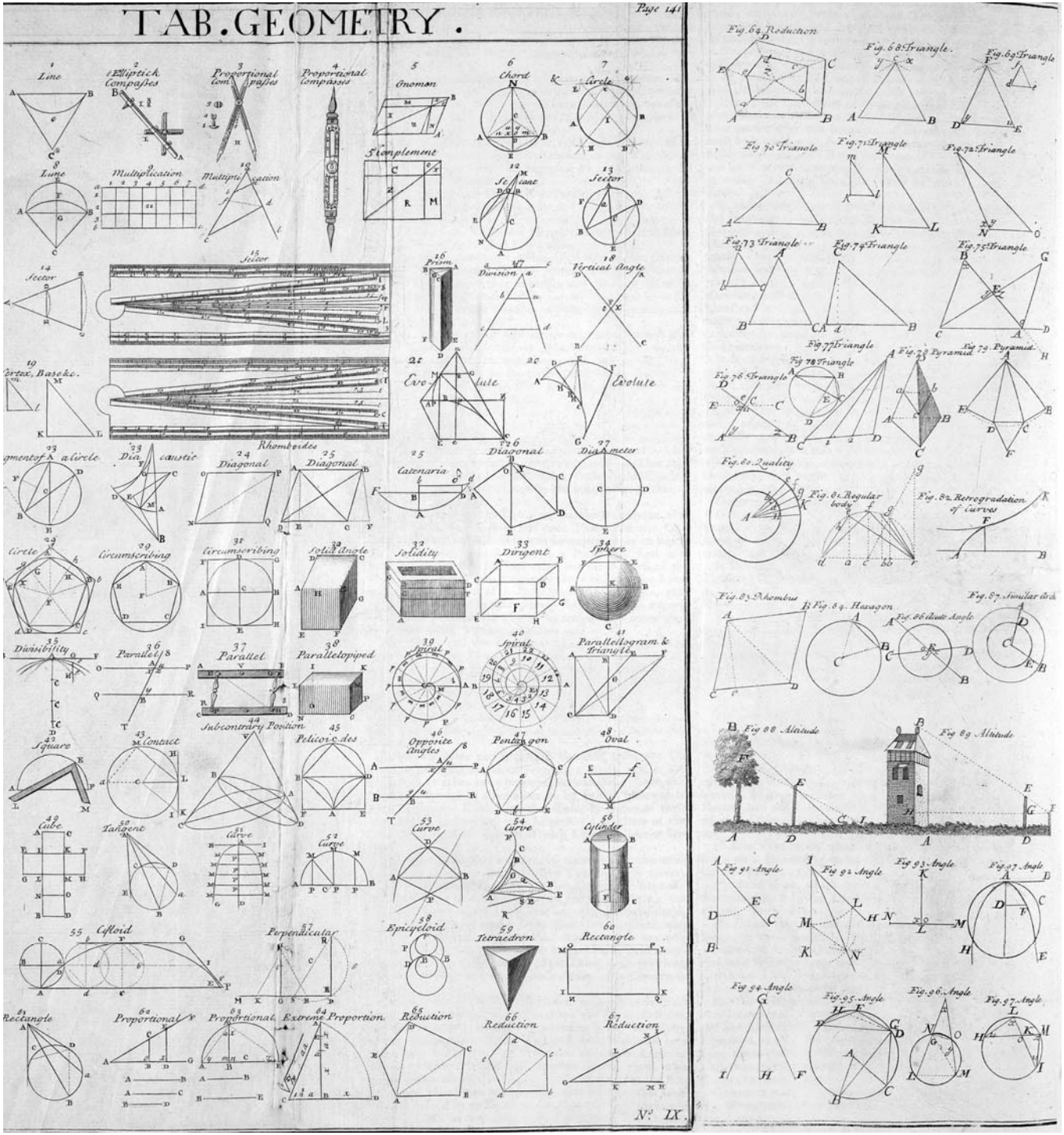
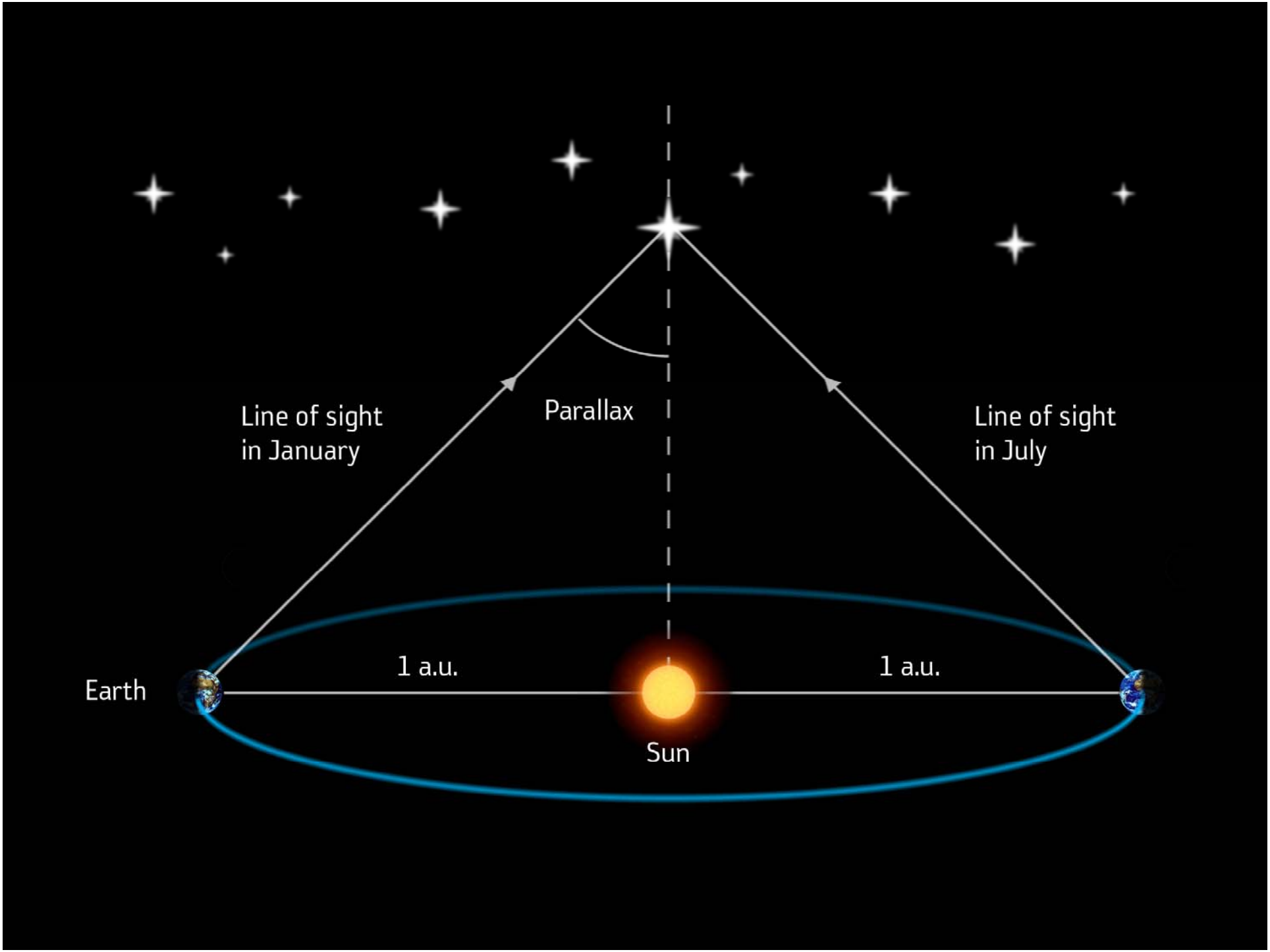
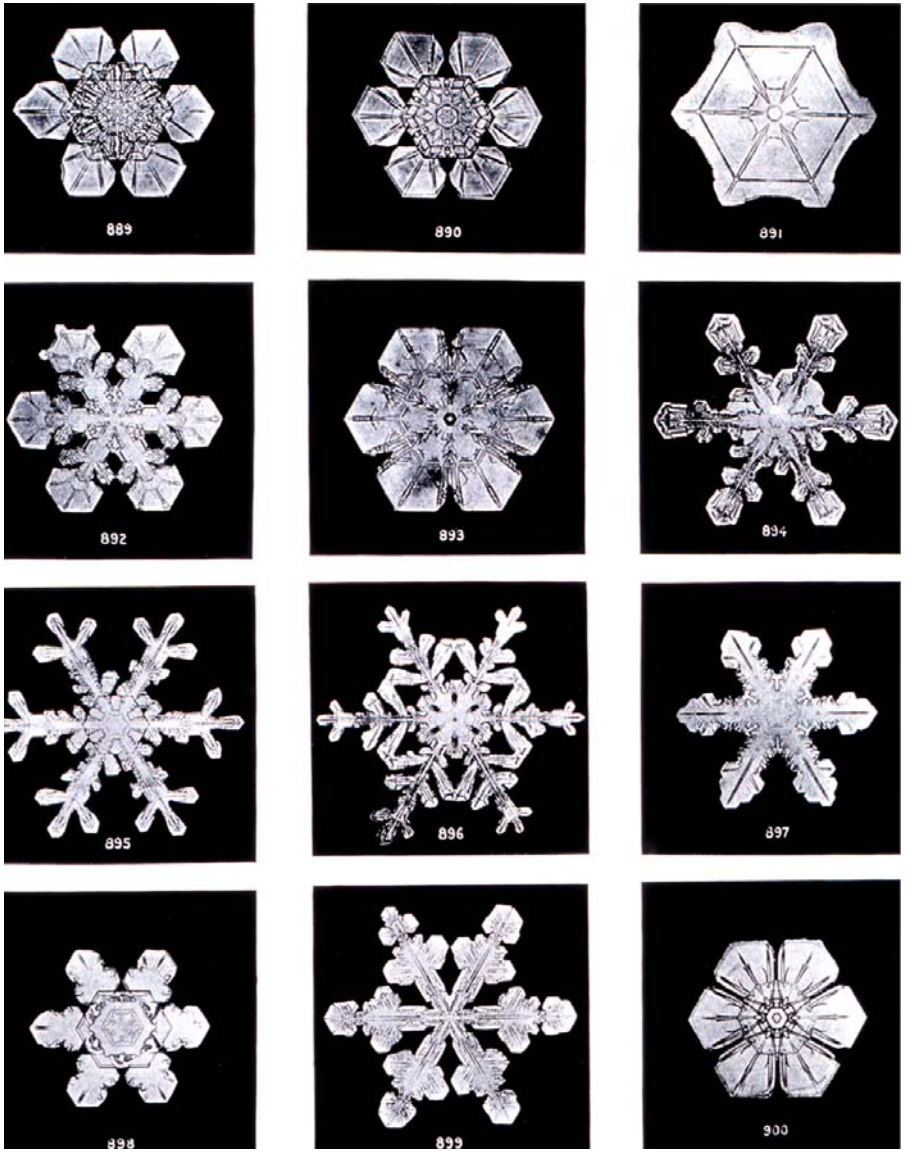
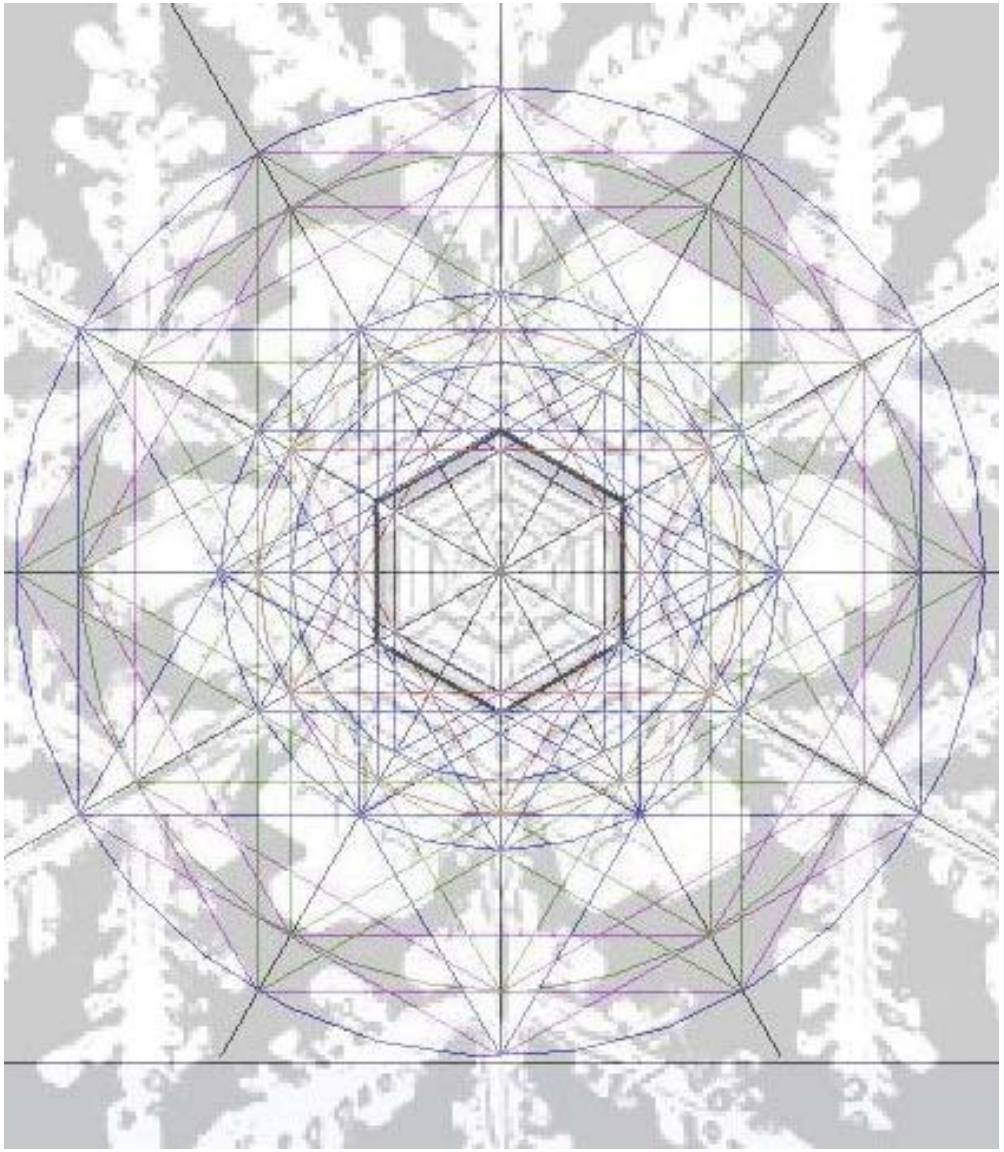


Table of Geometry, 16th c


Line of sight
in January
Parallax
Line of sight
in July
Earth
1 a.u.
1 a.u.
Sun

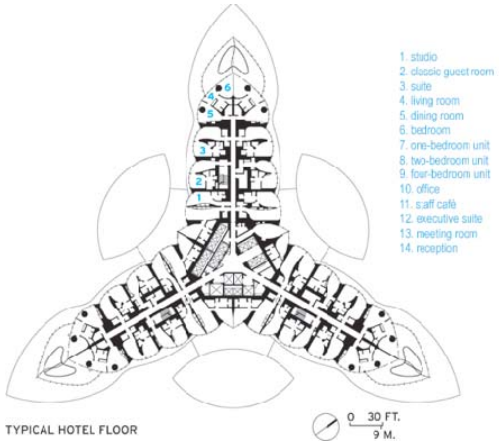


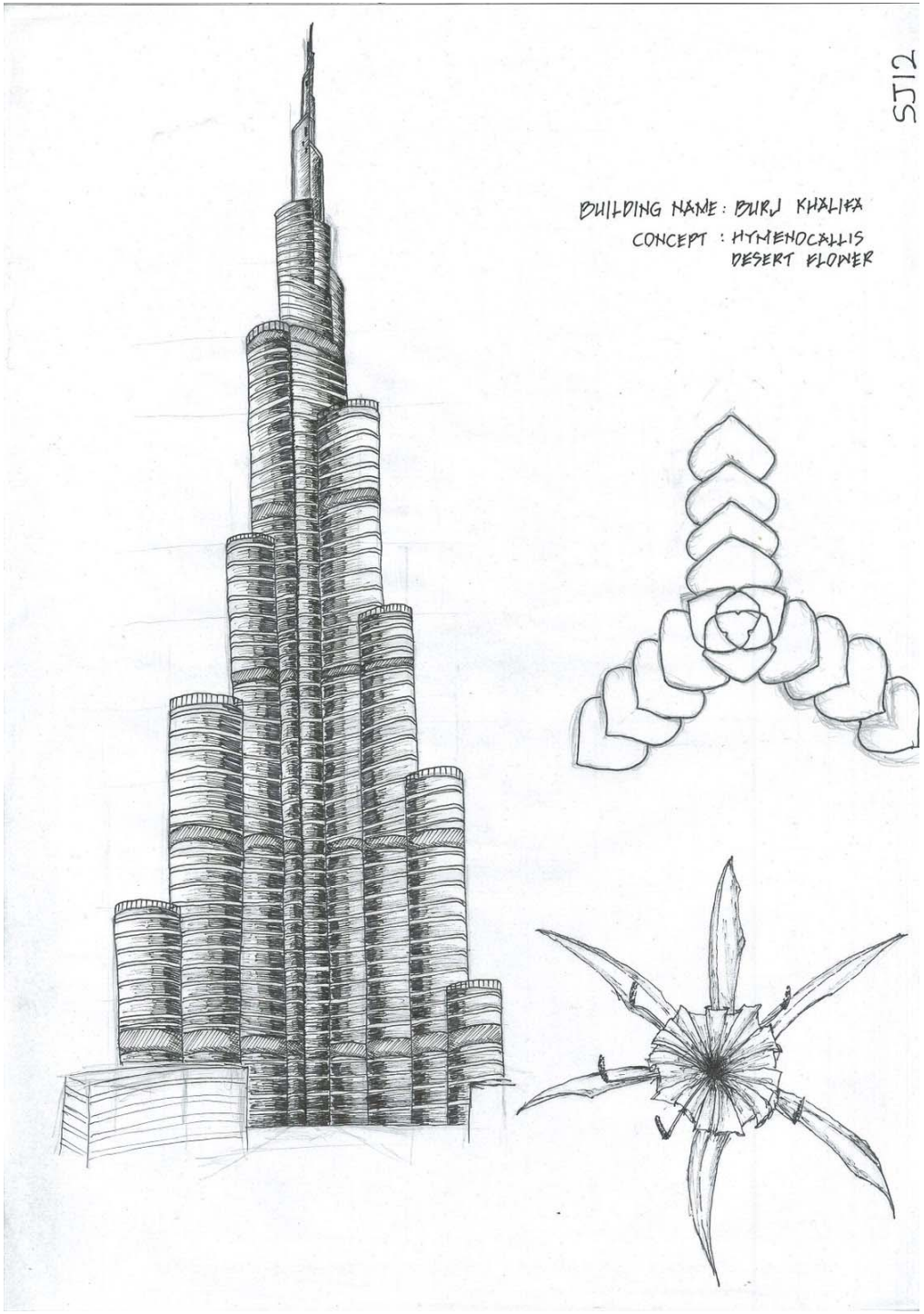


Geometry in Nature

Burj Khalifa (2010, SOM)

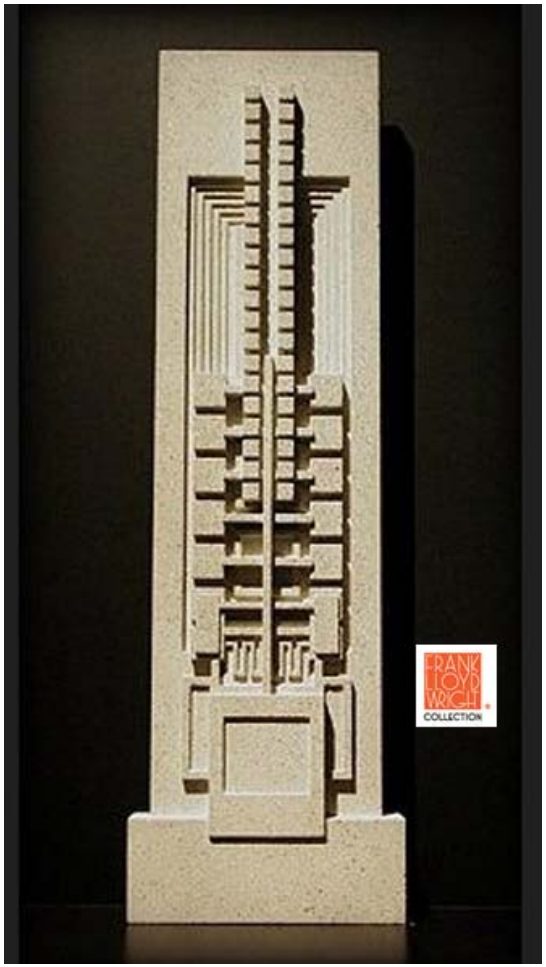
- Tallest building in the world (2,717')
- Geometric three-lobed footprint
- Inspired by the hymenocallis flower, a regional desert flower





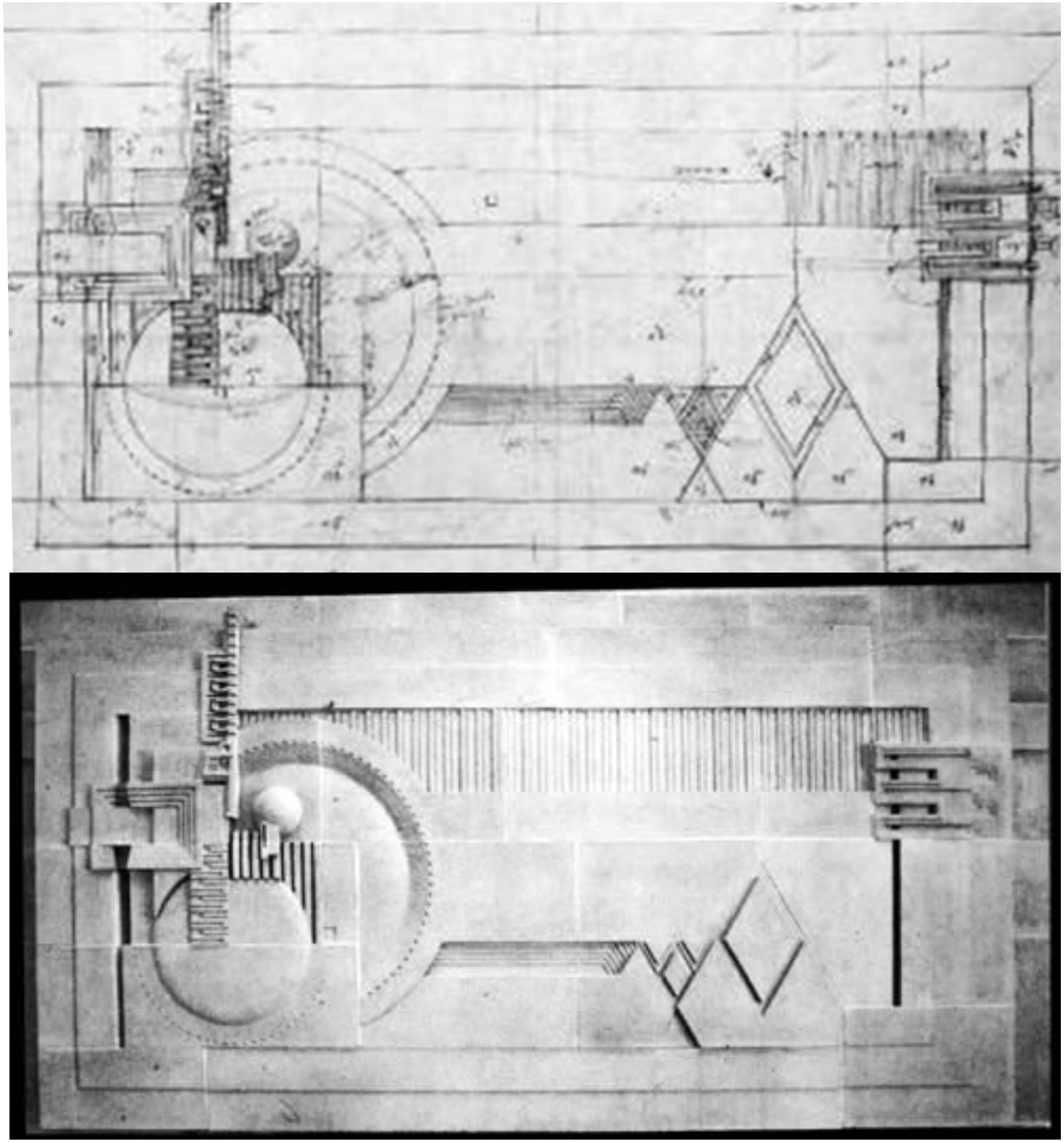
Hollyhock House (Frank Lloyd Wright, 1921)

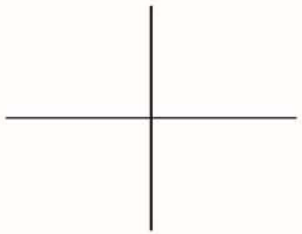
Abstracted geometry of the hollyhock plant served as the central motif for the entire house.



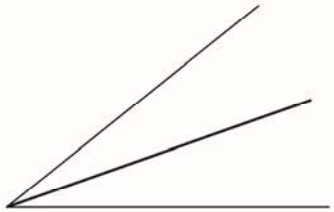
Hollyhock House

Fireplace geometry

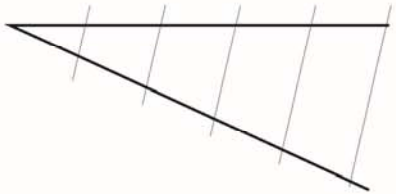




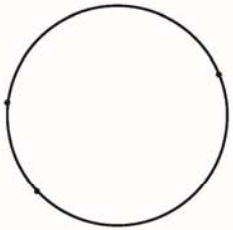
PERPENDICULAR BISECTOR



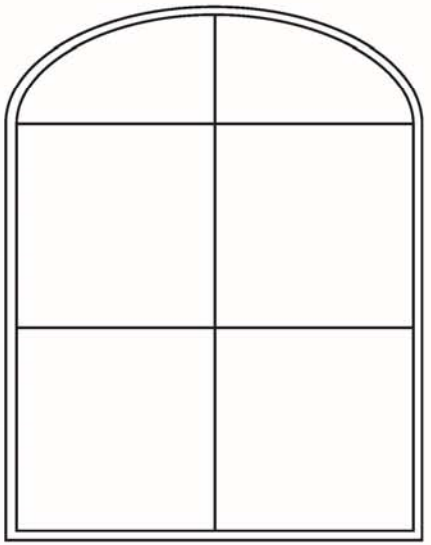
BISECTING AN ANGLE



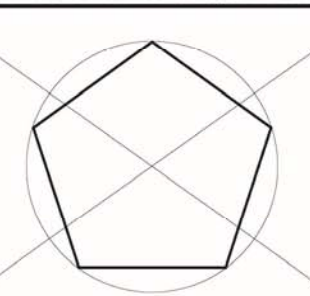
DIVIDING A LINE INTO EQUAL PARTS



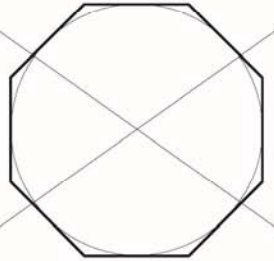
A CIRCLE THROUGH RANDOM POINTS



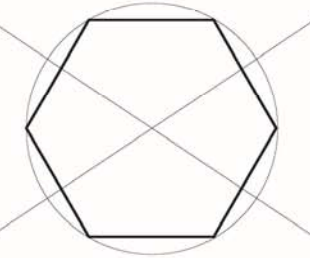
SQUARE WINDOW WITH ELLIPTICAL TRANSOM



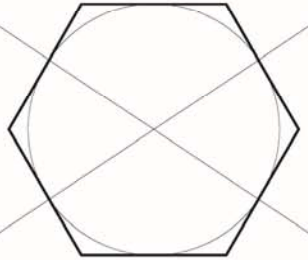
INSCRIBED PENTAGON



CIRCUMSCRIBED OCTAGON



INSCRIBED HEXAGON



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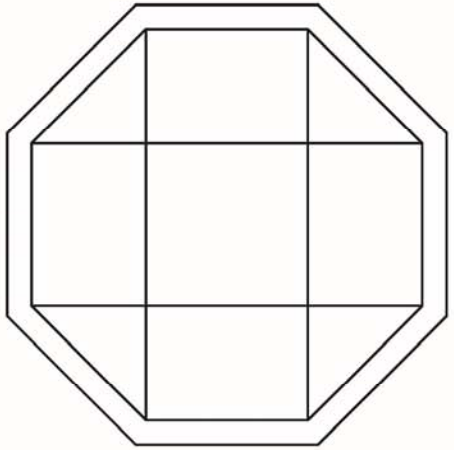

OCTAGONAL WINDOW

ESHERICK HOUSE
204 SUNRISE LANE
PHILADELPHIA, PA 19118
LOUIS KAHN, 1961

NOTES:

NEW YORK CITY COLLEGE OF TECHNOLOGY

DRAWN BY:
NAME

DATE:

SCALE: NONE

GEOMETRIC CONSTRUCTIONS WINDOW SCHEDULE

A-002